WHAT IS THE MONTANA DIABETES PROJECT AND HOW CAN WE BE CONTACTED:

The Montana Diabetes Project is funded through a cooperative agreement with the Centers for Disease Control and Prevention, Division of Diabetes Translation (U32CCU815663-01). The mission of the Diabetes Project is to reduce the burden of diabetes and its complications among Montanans. Our web page can be accessed at http://ahec.msu.montana.edu/diabetes/default.htm.

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MONTANA DIABETES SURVEILLANCE & CLINICAL COMMUNICATION

MONTANA DIABETES PROJECT

Montana Department of Public Health and Human Services
Chronic Disease Prevention and Health Promotion Program
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Montana Diabetes Surveillance & Clinical Communication

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FOOT CARE AMONG MONTANA MEDICARE BENEFICIARIES WITH DIABETES, 1998

WHAT'S INSIDE

BACKGROUND:

This report describes the result of a collaborative effort by the Mountain-Pacific Quality Health Foundation (MPQHF), Region X Office of the Health Care Financing and Administration (HCFA), and the Montana Department of Public Health and Human Services (MT DPHHS). The objectives of this effort were twofold. The first was to describe the knowledge, perceptions and risks for foot complications among Montana Medicare beneficiaries with diabetes. The second was to describe the foot care services received by beneficiaries as well as their self-foot care practices. The overall goal of this report is to highlight potential opportunities to improve foot care for beneficiaries with diabetes.

METHODS:

Medicare inpatient and outpatient billing data from 1993 and 1994 were used to identify Montana Medicare beneficiaries with diagnosed diabetes. For the purpose of this assessment, a Medicare beneficiary with diagnosed diabetes was defined as a Montana resident who met the following criteria: 1. Fee-for-service Medicare beneficiary, alive on December 31, 1994; 2. Eligible for Part A & Part B for at least six months between January 1, 1993 and December 31, 1994; and 3. Had at least one diabetes-related inpatient claim or at least two diabetes-related office visits between January 1, 1993 and December 31, 1994. The ICD9 CM

codes used to identify diabetes-related claims were: Diabetes mellitus (250.0-250.9), Background diabetic retinopathy (362.01), Proliferative diabetic retinopathy (362.02), Diabetic cataract (366.41), and Polyneuropathy in diabetes (357.2). The CPT codes used to identify office visits were: New patient codes (99201-99205) and Established patient codes (99211-99215).

Medicare inpatient and outpatient billing data from 1993 through 1995 were used to identify Montana Medicare beneficiaries with diagnosed diabetes at high, possibly high and low risk of foot complications as previously described by Sugarman and colleagues.[1] Beneficiaries who had inpatient and/or outpatient ICD9 CM codes that included wounds, deformities, neuropathic or vascular complications, or infections of the lower extremity were defined as at high risk for foot complications. Diagnosis codes for conditions which might possibly include those affecting the lower extremities (e.g., cellulitis and abscess of the finger and toe) were defined as possibly at high risk. Beneficiaries without any of these conditions were defined as being at low risk for foot complications.

A random sample of Montana Medicare beneficiaries with diabetes statewide, was selected for a special telephone survey. Trained interviewers from September through November 1998 performed the telephone survey. The survey included questions regarding diabetes care, knowledge and perceptions about foot care, perceptions of risk for foot complications, self-foot care practices, and the self-reported health care utilization patterns associated with foot care. A total of 577 beneficiaries identified as having diagnosed diabetes were interviewed. Of these respondents, 537 (93%) reported ever being told by a doctor that they had diabetes, and are included in the present analyses.

TABLE 1. Characteristics of Montana Medicare beneficiaries responding to the survey.

Characteristics	Mean	SD*
Age	75.3	8.0
Sex	#	%
Male	233	43
Female	304	57
Years of Education		
<12	166	31
≥12	365	68
American Indian		
Yes	42	8
No	493	92
Currently use insulin		
Yes	248	46
No	211	39
Currently use tobacco		
Yes	55	10
No	480	89
	Mean	SD
Visit to physician (past year)	8.8	5.0

*Standard deviation

CHARACTERISTICS OF MONTANA MEDICARE BENEFICIARIES WITH DIABETES RESPONDING TO THE SURVEY:

As displayed in Table 1, the majority of respondents were female (57%) and had >12 years of education (68%). The mean age of respondents was 75.3 years. Approximately 8% reported they were American Indian. Just under half of the respondents reported currently using insulin (46%) and 61% reported taking oral diabetes medications.

KNOWLEDGE AND BELIEFS REGARDING FOOT CARE AND COMPLICATIONS:

Overall, beneficiaries with diagnosed diabetes had a high level of knowledge about foot care and complications. The mean total knowledge score of respondents was 8.1 (SD 2.6) for the 11 survey items. Table 2 displays the percentage of correct responses for each knowledge/belief question. Less than two-thirds of respondents (62%) felt that people with diabetes should check their feet for sores or irritations at least once a day. Over 80% of respondents correctly acknowledged the risk of persons with diabetes for ulcers, amputations, blood flow and neuropathic problems, and the importance of blood glucose control in reducing foot complication

Steps to take:

✓ The physician providing comprehensive care to the person with diabetes would determine if the patient qualifies and would complete the "statement of certifying physician" as displayed below.
✓ The patient would then obtain a prescription from a qualified physician, other than the patient's diabetes provider, who is knowledgeable in fitting therapeutic shoes and inserts (such as a podiatrist).
✓ The patient then has the therapeutic footwear designed, fitted or modified by a therapeutic footwear provider (a pedorthist, orthotist, prosthetist or podiatrist).

Statement of Certifying Physician for Therapeutic Footwear (certifying physician may be different from prescribing physician)

Patient Name:_____

HIC#_____

Address:_____

I certify that the following statements are true:
1. This patient has diabetes mellitus: ICD9 Code:_____ (ICD9 diagnosis codes 250.00-250.91)

2. This patient has one or more of the following conditions (check all that apply):
❑ History of partial or complete amputation of the foot
❑ History of previous foot ulceration
❑ History of pre-ulcerative callus
❑ Poor circulation
❑ Peripheral neuropathy with evidence of callus formation
❑ Foot deformity

3. I am treating this patient under a comprehensive plan of care for his or her diabetes.

4. The patient needs special shoes (depth or custom-molded shoes and/or inserts) because of his or her diabetes.

Certifying Physician Information

Signature: _____

Date:_____

Name: _____

DEA#: _____

Medicare UPIN#: _____

Medicaid Provider #:_____

UPCOMING EVENTS:

State of the Art Diabetes Care: Preparing for the Next Millennium - May 14-15, 1999, Great Falls, Montana
The goal of the conference is to provide state of the art information on diabetes care and research for physicians, nurses and other health care professionals (Friday and Saturday the 14th and 15th) as well as persons with diabetes and their family members (Saturday only). Continuing educational credits have been requested. The keynote speaker will be Irl Hirsch, M.D. who will be presenting on the pharmacologic management of diabetes, standards of care, implications of United Kingdom Prospective Diabetes Study. For more information regarding the conference please call the Diabetes Project at (406) 444-6677.

Beyond Diabetes Basics: Strategies for Success - September 17-18, 1999, Kalispell
The Montana Diabetes Project and the Montana Chapter of the American Association of Diabetes Educators are sponsoring a one and a half day conference for health care professionals. The faculty and topics include: Judy Kohn, RN, BSN, CDE (Indepth diabetes medication management), Margaret Cleary, MS, RN (Working with the visually impaired), and Michelle Deck, RN, BSN, MEd (Improving teaching skills and presentations).
For more information call the Diabetes Project at (406) 444-6677.

ERRATA:

In Table 1 of the Oct.-Dec. 1998 surveillance report, the number of white Medicare beneficiaries with diabetes should equal 8,343 not 83,432.

COMMENTARY:

Dorothy Gohdes, MD

Diabetes is the leading cause of lower extremity amputation (LEA) in the United States. (Diabetes in America, 1995) Foot problems including ulcers and amputations are a common complication of this disease and threaten the independence of older Montana residents with diabetes. More than 40 Montana Medicare beneficiaries with diabetes were hospitalized in 1995 for a LEA (MT DPHHS, 1998). From 1993 through 1995 one in four (28%) Medicare beneficiaries with diabetes had a hospitalization or outpatient diagnosis which suggested they were at high risk for foot complications. To keep individuals healthy and independent it is important for health care providers and all Montanans with diabetes to be meticulous about foot care.

Studies of the pathways to LEAs have shown that foot problems have multiple causes including peripheral neuropathy and vascular insufficiency. In 80% of cases, a potentially preventable episode of minor trauma caused a small ulceration that did not heal and set off the cascade of events leading to a LEA (Pecoraro RE, 1990). As described in this report, Medicare beneficiaries with diabetes were aware of the relationship between diabetes and foot problems. Yet 20% of respondents reported checking their feet "rarely or never" – even those at high risk. Almost half (48%) of those at high-risk for foot complications who reported that they rarely or never check their feet indicated that they "did not feel it was important" to check their feet.

These data underscore a real opportunity for health care providers in Montana to educate patients about the importance of self-foot care, particularly among persons at high risk. The key prevention messages for patients are "checking your feet at least once everyday or have a family member/friend check them" and "have your doctor check your feet at each visit." Small foot problems, which most often can be easily treated when identified early, can be devastating if they progress unrecognized. The loss of protective sensation as measured by the inability to feel the 5.07 Semmes Weinstein monofilament occurs gradually and individuals often are not aware a problem exists. By testing a site on the hand as well as the feet, health care providers can help their patients experience how much less sensitive their feet are and thus help them understand how important it is to check their own feet regularly.

Efforts to reduce foot ulcers and amputations should target individuals at high risk due to predisposing conditions such as a history of ulcers, a previous amputation, peripheral vascular disease, a foot deformity or a loss of protective sensation. A yearly comprehensive foot exam (e.g., a visual exam, checking peripheral pulses, sensation and for deformities) can identify high risk patients. A visual foot exam at each visit can identify problems at an early stage. Studies have shown that interventions targeting patients at high risk can improve self-foot care behaviors and reduce LEAs (Rith-Najarian S, 1998; Litzelman DK, 1993). Patients at high risk should receive intensive self-foot care education and follow-up. Additionally, footwear modifications should be considered. Medicare and Montana Medicaid provide coverage for therapeutic shoes, inserts, and orthotics for those at high-risk (see page 7). The results of this survey encourage Montana health care providers to examine the feet of all their patients with diabetes very carefully and to identify those at high risk for foot problems so these patients can receive the education and follow-up needed to stay healthy and independent.

WHERE CAN I GET FOOT CARE RESOURCES?:

There are a number of excellent diabetes foot care resources for health care providers. An example is the NIDDK "Feet can last a lifetime" kit. This kit is available for $7.00 and includes patient and provider education materials and a monofilament. Printed materials are available free of charge via the Internet at http://www.niddk.nih.gov under "Health Information." To order a kit write to NIDDK at "Feet Can Last a Lifetime," One Diabetes Way, Bethesda, MD 20892-3600. For an order form or more information about foot care resources please contact the Diabetes Project at 406/444-6677.

COVERAGE FOR THERAPEUTIC SHOES, ORTHOTICS AND INSOLES:

Footwear modifications are critical for persons with diabetes at high risk of foot complications. A previous study has demonstrated improved outcomes (prevention of relapse of foot ulcerations) when special shoes were used.(Uccioli L, 1995) Additionally, two other recent studies have found that appropriately fitted commercial footwear such as athletic shoes were effective in reducing plantar pressures that may result in future ulcerations.(Perry JE, 1995; Soulier SM, 1986) Both Medicare and Montana Medicaid provide coverage for therapeutic footwear for persons with diabetes. The "statement of certifying physician" below describes the conditions that need to be met for Medicare to cover this benefit.

TABLE 2. Knowledge and beliefs about foot care and complications among Medicare beneficiaries with diabetes.

People with diabetes should . . .	Correct Response
Check feet once a day	62%
Wash feet in warm soapy water	80%
Cut toenails straight across	51%
Put lotion or other skin softening oils on their feet	70%
People with diabetes are at higher risk than the general population of having . . .	
Foot ulcers and other foot problems	82%
Foot ulcers which can lead to amputations	85%
People with diabetes . . .	
Are more likely to have poor blood flow in their feet than the general population	84%
Are more likely to have nerve problems in their feet as compared to the general population	80%
Can prevent most foot problems by checking their feet daily and having a health care provider examine their feet at each visit	81%
Who control their blood sugar are less likely to have foot problems	83%
Who smoke or chew tobacco are more likely to have foot problems	53%

risks. However, only 53% were knowledgeable regarding the risk of foot problems among persons with diabetes using tobacco.

RISKS FOR FOOT COMPLICATIONS BASED ON SELF-REPORT AND BY HOSPITALIZATIONS/OUTPATIENT VISITS:

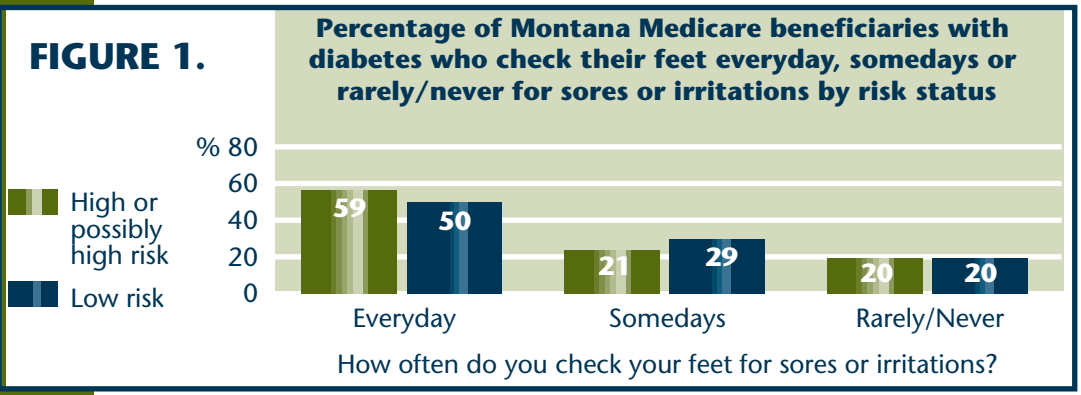
Based on the 1993 through 1995 inpatient and outpatient claims data, 28% of beneficiaries with diabetes were at high risk for foot complications. Two percent of beneficiaries were classified as being at possibly high risk and 69% of beneficiaries without any of the conditions described previously were defined as being at low risk for foot complications.

Respondents were asked if they ever had an ulcer, wound or black spot on their feet, or if they had ever had any portion of their toes, feet or legs amputated. Table 3 displays the self-reported history of foot ulcers and lower extremity amputations among Montana Medicare beneficiaries with diabetes by risk status. Beneficiaries at high/possibly high risk were more likely to report a history of ulcers or lower extremity amputations as compared to beneficiaries at low risk.

SELF-FOOT CARE AND PREVENTIVE FOOT CARE PRACTICES:

Respondents were asked how often they specifically check between their toes and the bottoms of their feet for sores or irritations. Of the 537 respondents, 53% reported checking their feet everyday, while 27% and 20% reported checking their feet somedays or rarely/never respectively. Figure 1 displays how often beneficiaries reported checking their feet by their hospitalization/outpatient risk status. Beneficiaries at high/possibly high risk were more likely to check their feet everyday as compared to those at low risk.

FIGURE 1.



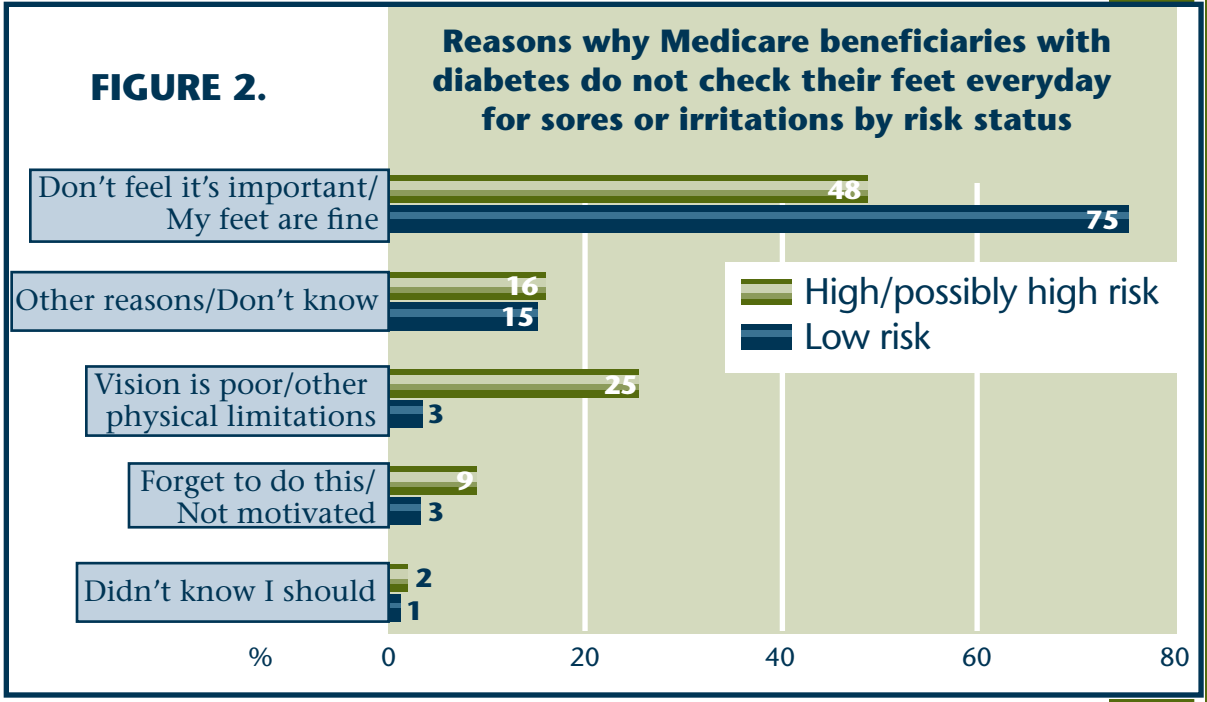
Beneficiaries who reported checking their feet somedays or rarely/never, were asked to identify reasons for not checking their feet daily. Figure 2 displays the reasons beneficiaries reported not checking feet daily

by risk status. The most frequent response for beneficiaries at high/possibly high and low risk was "Don't feel checking my feet is important/My feet are fine" (48% and 75% respectively). Beneficiaries at high/possibly high risk as compared to those at low risk were more likely to report not checking their feet due to vision problems or physical limitations (25% vs. 3% respectively). Relatively few (<3%) beneficiaries reported that they "Did not know they should check their feet or that a health care provider did not tell them to."

TABLE 3. Self-reported history of foot ulcers and lower extremity amputations among Montana Medicare beneficiaries with diabetes by risk status

	High/possibly high risk (N=165) %	Low Risk (N=372) %
History of ulcer	16	5
History of amputation	17	3

FIGURE 2.



Respondents were asked specific questions about how they take care of their feet. The majority of beneficiaries reported using lotions or other moisturizers on their feet in the past month (65%). Over one-fourth reported wearing sandals or open-toed shoes in the past year (27%). Seven percent reported using a water bottle, heating pads, or heated socks to keep their feet warm. Four percent reported using over-the-counter remedies to remove calluses, corns, or warts on their feet.

Beneficiaries with diabetes were also asked about preventive care services they may have received from a health care provider. Over one-third of respondents reported not having had their feet checked for sores or irritations in the past year (35%). Twenty-nine percent of beneficiaries reported seeing a podiatrist in the past year and 14% reported that they currently wear therapeutic shoes, orthotics or insoles.

PERCEIVED RISK OF FOOT COMPLICATIONS COMPARED TO RISK BASED ON HOSPITALIZATIONS AND OUTPATIENT VISITS:

Beneficiaries with diabetes were asked the following question to assess their perceived risk for foot complications. "What are your chances of having foot problems related to diabetes: high, medium, low, or none?" Figure 3 displays the responses for perceived risk from beneficiaries to the risk based on hospitalization/outpatient visit data. Beneficiaries at high or possibly high risk for foot complications were more likely to perceive themselves to be at high or medium risk for foot complications as compared to beneficiaries at low risk. However, 50% of beneficiaries at high or possibly high risk for foot complications (based on hospitalization/outpatient visits) perceived themselves to be at low or no risk for foot complications.

LIMITATIONS:

This method of case ascertainment (diabetes diagnosis) is an imperfect one and will underestimate the true prevalence of diabetes among Medicare beneficiaries because it will miss persons with diagnosed diabetes who had no Medicare claims, or only one outpatient claim, from 1993-1994. In addition, it will miss persons with diabetes who were not yet diagnosed. Similarly, beneficiaries with a hospitalization/outpatient visit diagnosis code for foot complications prior to 1993 would have been missed. The information in this report is subject to the limitations of using administrative claims data for epidemiological analyses. In general, the information with the highest reliability are those data related to billing or program administration, e.g., diagnosis and procedure codes, beneficiary and provider identifi cation, and total charges. Second, self-reported information regarding the respondents' self-foot care practices and preventive foot care may be subject to recall bias and to beneficiaries providing socially desirable responses.

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References:
1. Sugarman JR, Reiber GE, Baumgardner G, Prela CM, Lowery J. Use of therapeutic footwear benefit among diabetic Medicare beneficiaries in three states, 1995. Diabetes Care 1998;21(5):777-781.

FIGURE 3.